



TETRA TECH

April 24, 2020

Ms. Yvonne Smith  
On-Scene Coordinator  
U.S. Environmental Protection Agency, Region 7  
11201 Renner Boulevard  
Lenexa, Kansas 66219

**Subject:       Quality Assurance Project Plan, Addendum No. 1  
                  TCE Clinton Engines, Maquoketa, Iowa  
                  U.S. EPA Region 7 START 4, Contract No. 68HE0719D0001  
                  Task Order No. 19F0086, Subtask 004  
                  Task Monitor: Yvonne Smith, EPA On-Scene Coordinator**

Dear Ms. Smith:

Tetra Tech, Inc. is submitting the attached Addendum No. 1 to the previously approved Quality Assurance Project Plan prepared by EPA (and dated March 13, 2020) for the TCE Clinton Engines site. If you have any questions or comments, please contact me at (816) 412-1788.

Sincerely,

David Zimmermann  
START, Project Manager

Ted Faile, PG, CHMM  
START Program Manager

Enclosure

cc:       Todd H. Davis, EPA Iowa Site Assessment Manager

**ADDENDUM NO. 1**

**QUALITY ASSURANCE PROJECT PLAN  
TCE CLINTON ENGINES, MAQUOKETA, IOWA**

**Superfund Technical Assessment and Response Team (START) 5  
Contract No. 68HE0719D0001, Task Order No. 19F0086.004**

Prepared For:

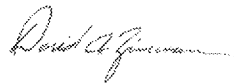
U.S. Environmental Protection Agency  
Region 7  
11201 Renner Boulevard  
Lenexa, Kansas 66219

April 24, 2020

Prepared By:

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APPROVED BY:



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David Zimmermann, START Project Manager

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04/24/2020


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Date



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Ted Faile, PG, CHMM, START Program Manager

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04/24/2020

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Kathy Homer, START Quality Assurance Manager

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04/24/2020

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Yvonne Smith, EPA Region 7 On-Scene Coordinator

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Date

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Diane Harris, EPA Region 7 Quality Assurance Manager

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Date

**ADDENDUM NO. 1**  
**QUALITY ASSURANCE PROJECT PLAN**  
**TCE CLINTON ENGINES SITE**  
**MAQUOKETA, IOWA**

This document is an addendum to the Quality Assurance Project Plan (QAPP) dated March 13, 2020, which was prepared by the U.S. Environmental Protection Agency (EPA) Region 7 for the TCE Clinton Engines site (site) in Maquoketa, Iowa. The EPA QAPP addressed indoor air, ambient air, and sub-slab vapor sampling. This addendum focuses on collection of soil, soil gas, and groundwater samples in close proximity to and downgradient of the facility.

Initiation of field work described in this addendum is planned for in May 2020, and will require two Superfund Technical Assessment and Response Team (START) members. The actual start date will depend on when field activities are allowed, given field work restrictions related to the COVID-19 virus. The original QAPP previously submitted by EPA remains the primary guidance document for integrated site assessment activities at the site, with additional sampling matrices as described below.

**Soil Sampling**

Tetra Tech START proposes to advance six soil borings near the sanitary sewer line near the former Clinton Engines site. Portions of the sanitary sewer lines are reported to be of clay pipe construction. According to the City, sewer lines are approximately 8 feet below ground surface (bgs); however, the depth will be confirmed in the field by conferring with the city. Two soil samples will be collected from each boring for laboratory analysis. These locations are selected to determine if the sanitary sewers received solvent waste from the former facility, and if the waste may have leaked from the clay pipe.

Collection of soil samples will proceed by use of a direct-push technology (DPT) rig. Soil cores will be screened by use of a photoionization detector (PID) for presence of elevated concentrations of volatile organic compounds (VOC). Tetra Tech START will collect samples from the two depth intervals exhibiting the highest VOC concentrations based on PID readings or visually apparent staining. If no indications of contamination are present, soil samples will be collected at depths of 1 and 8 feet below the sewer line (e.g., 9 and 16 feet bgs), assuming both depths are above groundwater. Soil samples from selected intervals will be collected directly from the core by use of tipless plastic syringes (per EPA standard operating procedure [SOP] 3230.16), placed into appropriate pre-preserved sample containers, and submitted for analysis for VOCs by the EPA Region 7 analytical laboratory. PID readings and observations regarding staining or odors will be recorded on boring logs.

At each DPT sample location, Tetra Tech START will record the address and global positioning system (GPS) coordinates (latitude and longitude). After completion of sampling, all DPT boreholes will be plugged with bentonite from bottom of hole to ground surface. Any disturbance to surface materials (concrete or asphalt) will be patched with appropriate material.

After collection, each sample will be labeled and packaged accordingly, and placed in a cooler maintained at or below a temperature of 4 degrees Celsius (°C) from time of collection until submittal for laboratory analysis. An electronic field sheet form will be completed for all samples delivered to the EPA Region 7 laboratory. The form includes sample information regarding laboratory analyses, sample number, quality control notations, matrix, location description (typically the address), date and time, and GPS coordinates.

### **Soil-gas Sampling**

As part of the investigation, soil-gas sampling activities are proposed in areas of known groundwater contamination, near residential areas, and at the periphery of previously identified groundwater contamination. The 12 proposed soil-gas sample locations are depicted on Figure 2 (see Appendix A). Sampling will occur along city road right-of-ways.

At each sampling location, by use of a DPT rig, steel rods will be advanced to approximately 8 feet bgs, and then will be retracted about 6 inches to create a void space to allow collection of soil gas vapors. The soil-gas samples will be collected through the steel rods via disposable polyethylene tubing connected to the bottom of the rod string and Tedlar bag on the ground surface. By use of a vacuum pump, air in the tubing will be evacuated prior to connection of the tubing to the Tedlar bag. At least two volumes of soil gas will be purged from polyethylene tube by use of a vacuum pump. When the vacuum in the tube has returned to atmospheric pressure, a vacuum chamber (Pelican case) containing a 1-liter Tedlar bag will be connected to the top of the steel rod with plastic tubing, and a soil gas sample will be drawn into the Tedlar bag by use of a vacuum pump. The collection will be performed at a flow rate less than or equal to 200 milliliters per minute to ensure that the vacuum is not high enough to draw ambient air into the sampling tube. A subcontracted mobile laboratory will analyze soil gas samples on site for VOCs (trichloroethene [TCE], *cis*-1-2 dichloroethene [DCE]) via gas chromatography (GC).

Tetra Tech START will use a Global Positioning System (GPS) unit to record latitude and longitude coordinates at each sampling location. After completion of sampling, all boreholes will be plugged with bentonite from bottom of hole to ground surface. Any disturbance to surface pavement will be patched with appropriate material to match the surrounding grade.

### **Private/Municipal well sampling**

Privately owned domestic wells and City public water supply wells will be sampled to determine if site-related chlorinated solvents have impacted those wells. The three known domestic wells and three City supply wells are shown on Figure 2, but currently active well locations must be verified in the field. Tetra Tech assumes at least two additional domestic wells will be identified. Where applicable, untreated groundwater samples will be collected from taps/spigots nearest the wellheads, prior to any treatment systems. The system lines at active wells will be purged for approximately 5 minutes before collection of samples. Any well not currently in use will be purged for at least 15 minutes prior to sampling. Water quality parameters (pH, conductivity, and temperature) will be recorded after purge of each well over the designated time. Samples will be collected into three 40-milliliter vials preserved with hydrochloric acid (HCl) for analysis for drinking water-level VOCs. All water samples will be stored in coolers maintained at or below a temperature of 4 °C pending submittal to the EPA Region 7 laboratory.

An electronic field sheet form will be completed for all samples delivered to the EPA Region 7 laboratory. The form includes sample information regarding laboratory analyses, sample number, quality control notations, matrix, location description (typically the address), date and time, and GPS coordinates. Relevant information such as purge time, sample depth, and drinking water treatment systems will be recorded in the field logbook or boring logs. No sample-specific field parameters (e.g., pH, conductivity, temperature) are anticipated for this investigation.

### **Investigation-derived Wastes**

Disposal of investigation-derived wastes (IDW) and procedures for equipment and personal decontamination will be addressed in a site-specific health and safety plan prepared by Tetra Tech START. IDW is expected to consist of disposable sampling supplies (tubing, gloves, paper towels, etc.) that will be sent for disposal off site as uncontaminated solid waste.

### **Quality Control Samples**

To evaluate sample quality control (QC), one soil duplicate, one water duplicate, and one trip blank (water) will be collected. The blank samples will be submitted for analysis for VOCs.

The water trip blank sample, prepared by the EPA Region 7 laboratory, will accompany and be submitted with the samples. Trip blank sample results will indicate whether any cross-contamination of samples will have occurred during shipment of empty containers or samples.

Field duplicates for soil and groundwater will be collected to measure total method precision.

QC samples will be labeled and stored in a cooler maintained at or below a temperature of 4 °C pending submittal to EPA Region 7 laboratory.

QC samples will be analyzed using the same method as VOCs (Low Detection Limits) via GC / mass spectrometry (MS) according to EPA Standard Operating Procedure (SOP) 3230.13.

A summary of all anticipated samples for this project is in Table 1. A summary of data quality objectives for this project is in Table 2. SOPs and chain-of-custody procedures referenced in the original QAPP and this QAPP Addendum will be followed throughout sampling activities to verify integrity of samples from time of collection until submittal to the laboratory for analysis.

## **ANALYTICAL METHODS**

Water samples will be submitted to the EPA Region 7 laboratory in Kansas City, Kansas, for analysis. The samples will be analyzed for VOCs in accordance with SOPs and methods referenced in Table 1 below. Standard turnaround times and detection limits for those methods will be adequate for this project. Appropriate containers and physical/chemical preservation techniques will be applied during field activities to help verify acquisition of representative analytical results. The Tetra Tech START Project Manager will complete an Analytical Services Request form and submit it to the EPA Region 7 laboratory. Submittal of samples to the laboratory is expected in June 2020.

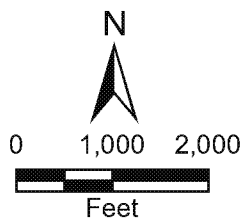
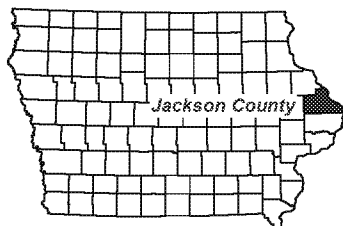
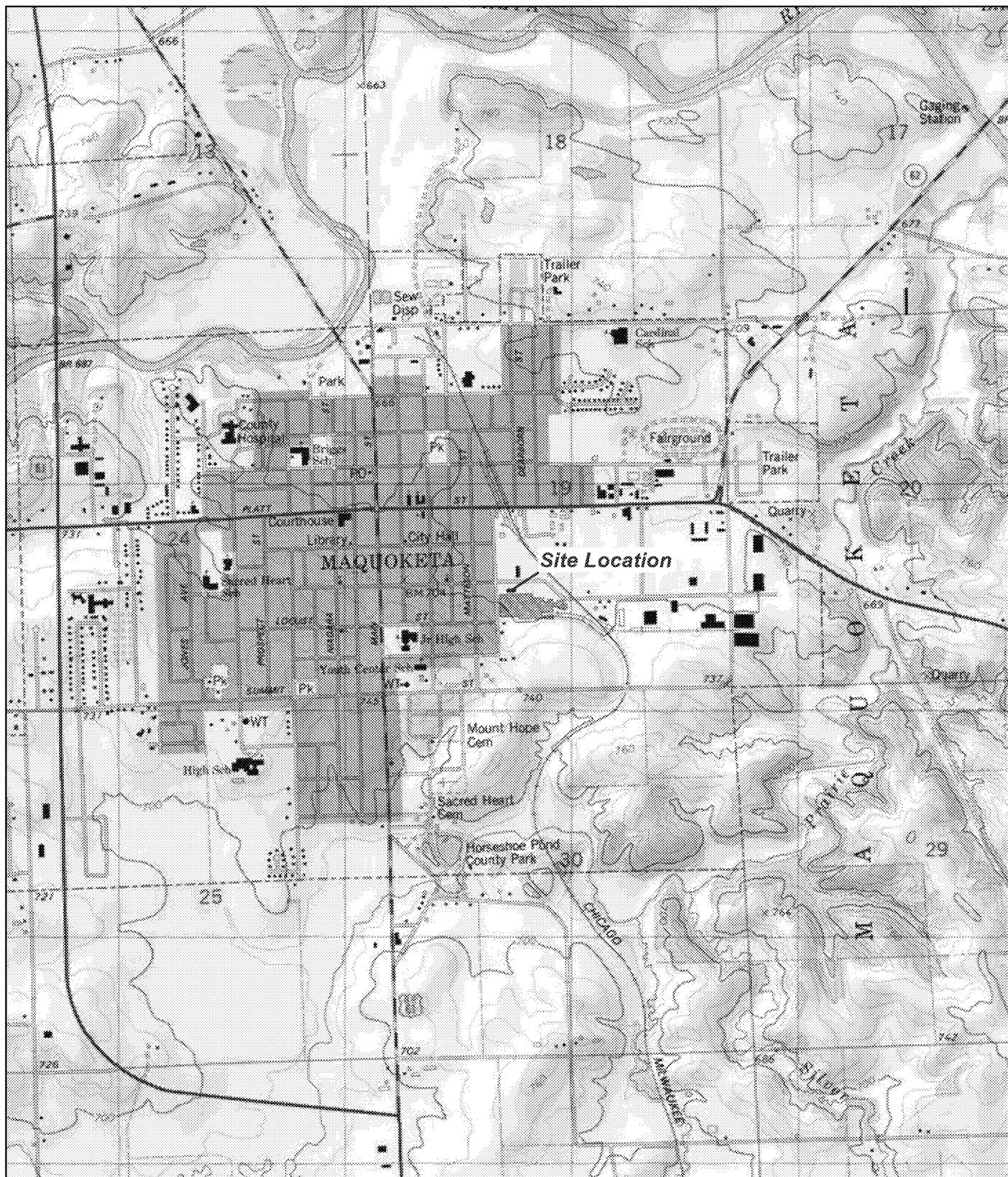
| <b>Region 7 Superfund Program</b><br><b>Addendum to the Generic QAPP for the Superfund Site Assessment and Targeted Brownfields Assessment Programs (November 2017)</b><br><b>for the TCE Clinton Engines Site</b> |          |  |  |   |                    |                            |                       |
|--|----------|--|--|---|--------------------|----------------------------|-----------------------|
| Table 1: Sample Summary  |          |  |  |   |                    |                            |                       |
| Site Name: TCE Clinton Engines Site  |          |  |  | Location: Maquoketa, IA; see Appendix A, Figure 1   |                    |                            |                       |
| START Project Manager: David Zimmermann  |          |  |  | Activity/ASR #: To be determined  |                    | Date: May 2020             |                       |
| No. of Samples   | Matrix   | Location   | Purpose  | Depth or other Descriptor   | Requested Analysis | Sampling Method            | Analytical Method/SOP |
| 8  | Water    | Six previously identified domestic and municipal wells and two wells to be determined                  | To assess the level of trichloroethene (TCE) contamination in the wells  | Previously installed wells are screened from about 35 to 80 feet below ground surface (bgs). New wells will be screened at about 60 to 70 feet bgs. | VOCs               | EPA SOP 4230.10            | EPA SOP 3230.13       |
| 12   | Soil     | Samples will be collected below sewer line in the site area, with two samples from each of six borings | Samples from beneath sewer lines will be collected to determine if sewer lines served as contaminant transport conduit | Collection of all samples within approximate depth interval of 9 to 18 feet bgs.  | VOCs               | EPA SOP 4230.03<br>4230.07 | EPA SOP 3230.16       |
| 12   | Soil-gas | Samples will be collected from 12 locations near sewer lines   | To assess the level of TCE contamination in soil gas   | Collection of samples at 8 feet bgs near sewer lines  | VOCs               | EPA SOP 4231.2042          | EPA SOP 2318.10       |
| QC Samples   |          |  |  |   |                    |                            |                       |
| 1  | Water    | Duplicate  | To assess total method precision   | Same as original  | VOCs               | 4230.10                    | EPA SOP 3230.13       |
| 1  | Soil     | Duplicate  | To assess total method precision   | Same as original  | VOCs               | 4230.03<br>4230.07         | EPA SOP 3230.16       |
| 1  | Water    | Trip blank   | To assess field/transportation-related contamination   | N/A   | VOCs               | N/A                        | EPA SOP 3230.13       |

| Region 7 Superfund Program<br>Addendum to the Generic QAPP for the Superfund Site Assessment and Targeted Brownfields Assessment Activities (November 2017)<br>for the TCE Clinton Engines Site |                   |                           |                       |   |  |  |                               |                                |
|---|-------------------|---------------------------|-----------------------|---|--|--|-------------------------------|--------------------------------|
| Table 2: Data Quality Objective Summary   |                   |                           |                       |   |  |  |                               |                                |
| Site Name: TCE Clinton Engines Site   |                   |                           |                       | Location: Maquoketa, IA; see Appendix A, Figure 1                       |  |  |                               |                                |
| START Project Manager: David Zimmermann   |                   |                           |                       | Activity/ASR #: To be determined  |  |  | Date: May 2020                |                                |
| Analysis  | Analytical Method | Data Quality Measurements |                       |   |  |  | Sample Handling Procedures    | Data Management Procedures     |
|   |                   | Accuracy                  | Precision             | Representativeness  | Completeness                                   | Comparability  |                               |                                |
| Groundwater   |                   |                           |                       |   |  |  |                               |                                |
| VOCs  | See Table 1       | Per analytical method     | Per analytical method | Judgmental sampling based on professional judgment of the sampling team | 100%; no critical samples have been identified | Standardized procedures for sample collection and analysis will be used. | See Section 2.3 of QAPP form. | See Section 2.10 of QAPP form. |
| Soil  |                   |                           |                       |   |  |  |                               |                                |
| VOCs  | See Table 1       | Per analytical method     | Per analytical method | Judgmental sampling based on professional judgment of the sampling team | 100%; no critical samples have been identified | Standardized procedures for sample collection and analysis will be used. | See Section 2.3 of QAPP form. | See Section 2.10 of QAPP form. |

**APPENDIX A**

**FIGURES**





TCE Clinton Engines  
Maquoketa, Iowa

**Figure 1**  
Site Location Map



Source: Jefferson West, Iowa USGS 7.5 Minute Topo Quad, 1986;  
Jefferson East, Iowa USGS 7.5 Minute Topo Quad, 1986.

Date: 4/23/2020

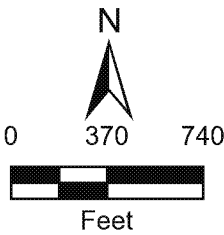
Drawn By: Rose Micka

Project No: X903019F0086.004



Legend

- ⊕ City well well sample
- Domestic well sample
- Soil gas sample
- Soil sample



Source: Esri, ArcGIS Online, World Imagery, 2016 and 2018.

TCE Clinton Engines  
Maquoketa, Iowa

**Figure 2**  
Proposed Sample Locations

